Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
The Development of Operational, Technical	)	WT Docket 96-86
and Spectrum Requirements for Meeting	)	
Federal, State and Local Public Safety	)	
Communications Requirements Through the	)	
Year 2010	)	

REPLY COMMENTS OF THE NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL

The National Public Safety Telecommunications Council (NPSTC) submits these reply comments in response to the Commission's Eighth Notice of Proposed Rulemaking (NPRM) in the above proceeding. The NPRM addresses the structure of the 700 MHz band dedicated to public safety communications services and whether the Commission should modify the current band plan to promote broadband communications.[1]

The comments essentially support one of three proposals, that of Lucent Technologies (Lucent); that of Access Spectrum LLC, Columbia Capital III, LLC, Intel Corporation, and Pegasus Communications Corporation (Access Spectrum); and that proposed by NPSTC. NPSTC continues to believe that its model presents the most realistic alternative to afford local and state public safety agencies the discretion and flexibility to determine how best to use the spectrum. The merits of the Access Spectrum's proposal are tempered by the costs it would impose on public safety agencies, which, unless absorbed elsewhere, present a significant barrier to its implementation. NPSTC believes that Lucent's proposal, which embraces an all broadband

[1] In the Matter of the Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, *Eighth Notice of Proposed Rulemaking*, WT Docket 96-86, FCC 06-34 (March 21, 2006).

environment, will limit the flexibility that should be afforded to public safety agencies in determining how best to use the band.[2]

Summary of the Three Proposals and Comments

The current 700 MHz public safety band segment was structured to provide 12 MHz of spectrum for narrowband voice channels and 12 MHz for wideband operations. The Commission identified channels for general use, interoperability, and reserve purposes. None of the proposals or comments challenges the need for narrowband voice channels and the quantity currently committed. Additionally, the comments recognize that the flexibility afforded and the technologies available are constrained by the spectrum available.

NPSTC proposes to combine the current reserve, general use, and interoperability wideband channels for wideband/broadband applications and place a .975 MHz guard band between voice and broadband channels. Channels of 50 kHz could be aggregated to form up to three 1.25 MHz broadband channels, or one 3.75 MHz channel. Local public safety agencies, in coordination with the Regional Planning Committee (RPC), would determine the allocation of wideband and broadband use within an area.[3]

Access Spectrum would consolidate the narrowband operations at the upper end of the 700 MHz public safety segment by relocating these channels from the current position. It would add three of the four MHz in the 700 MHz B Block to the 700 MHz public safety allocation to

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[2] Pegasus Communications Corporation (Pegasus) submitted a separate proposal that would consolidate the narrowband channels at the lower edge of the public safety allocation and broadband channels at the top. Pegasus would rely upon power flux density and out of band emissions (OOBE) restrictions, rather than guard bands, to protect public safety narrowband operations. No comments support the Pegasus proposal.

[3] The following comments support the NPSTC proposal: Association of Public-Safety Communications Officials, International (APCO), State of California, California Highway Patrol, City and County of Denver, Colorado, EADS Public Safety, Inc., Hamilton County, Ohio, Joint Comments of the International Association of Chiefs of Police, Major City Chiefs Association, National Sheriffs' Association and the Major County Sheriffs Association, the International Association of Fire Chiefs, Motorola, Inc., North Carolina State Highway Patrol, the Ohio Statewide Interoperability Executive Committee and the Spectrum Coalition for Public Safety.

be used for interference protection, including internal guard bands. The remaining one MHz of B Block spectrum would be added to the A Block, which would be moved adjacent to the lower edge of the public safety blocks. The proposal would increase the public safety allocation in the 700 MHz band from 24 MHz to 27 MHz. It would create a 5.5 MHz segment of paired spectrum for local public safety agencies in coordination with the RPC to determine broadband and wideband use.[4]

Lucent proposes that the 700 MHz band be restructured to facilitate broadband deployment. The Lucent plan would convert all wideband spectrum to broadband with guard bands of 1.125 MHz. It proposes that the Commission adopt a single, commercial broadband technology standard for public safety communications and that the standard should be EV-DO because of its technical characteristics and market maturity. Lucent also urges the Commission to consider consolidating the narrowband channels at the upper ends of the public safety segments. It states that this relocation will eliminate one of the guard bands, thus creating an additional 1.25 MHz channel, provided the Commission relaxes what Lucent characterizes as overly stringent out of band emissions (OOBE) rules.[5]

Analysis of Comments

NPSTC analysis of the comments is premised on its underlying concern that the decision of the Commission must recognize and accommodate the range of public safety agencies throughout the United States and that these agencies have an opportunity to determine how best the spectrum should be used. The environments these agencies operate in vary widely as does the

[4] The following comments embrace all or aspects of the Access Spectrum proposal: State of Hawaii, Department of Accounting and General Services, M/A COM, Inc., Northrup Grumman Information Technology, Inc., Region 24 700 MHz Regional Planning Committee (Missouri), Region 26 700 MHz Regional Planning Committee (Nebraska) and Region 39 700 MHz Committee (Tennessee).

[5] The following comments support Lucent's proposal: Lockheed Martin Corporation and QUALCOMM, Inc.

size of each agency. The result is that requirements cannot easily be categorized and translated to one universal band structure. Public safety is committed to local and state governments who are the source of its funding and responsible for its management. The variance in the size of local government is a major factor contributing to the range of agencies and requirements. How the spectrum is administered should recognize these realities if it is to be a meaningful resource in supporting these responsibilities. The other factors guiding NPSTC's analysis is the recognition of how constrained spectrum resources are and the actions that have already been taken in reliance of the current band plan. The flexibility and discretion NPSTC promotes seeks to ensure that local agencies have the opportunity to use the spectrum within the resources and capabilities of their environments.

Lucent's Proposal

NPSTC's reluctance to embrace an all broadband proposal relates to the range of agencies and environments of public safety agencies. While an all broadband, one technology band segment may present economies of scale and other benefits; our concern is that within the current environment the resources required will effectively shut out a range of agencies from using the spectrum. NPSTC believes that wideband operations are considerably more affordable than broadband and that this circumstance will not change dramatically in the near future. NPSTC thinks it important that the Commission provide wideband and broadband capability within the 700 MHz band.

By mandating that only broadband operations may be conducted in the band segment, additional costs are also mandated. Coverage is a crucial element of public safety communications, a standard that departs considerably from that embraced in commercial

operations. Deployment is not based on population but on the need for communications in an emergency. An inordinate percentage of the initial capital investment for a public safety system relates to the cost of the transmitter, tower, or antenna infrastructure. As broadband systems in general require more transmitter sites than wideband operations, the cost of the system commences at a higher level. The addition of even one tower may place the entire system out of range for an agency. Wideband operations also offer the flexibility of being more likely to allow the reuse of narrowband voice sites. The flexibility wideband provides will result in lower deployment costs. The manner by which public safety systems are financed, through taxpayer revenues, means that the choice will not be whether to expend additional resources, but whether to pursue a project to improve communications at all.

An all broadband segment will narrow choice. There are more requirements than the currently allocated spectrum to the public safety communications service can provide. For the 700 MHz band to respond optimally to public safety needs, there must be flexibility in how it is used. One-hundred twenty wideband channels of 50 kHz are more likely to respond effectively to the needs of a range of agencies in a large number of regions than three broadband channels of 1.25 MHz. That public safety agencies overwhelmingly operate their own systems instead of being part of a larger system also contributes to the need for both broadband and wideband operations in the band.

The challenge of the Lucent proposal is that, by removing flexibility, it imposes costs that many local agencies cannot meet within a reasonable period of time. And, by doing so, it removes access to the spectrum by these agencies. Absent a tangible proposal addressing how to finance these costs and overcome these barriers, NPSTC recommends against the Lucent proposal.

Access Spectrum's Proposal

Access Spectrum's proposal would provide 5.1 MHz for broadband and wideband operations, so that a total 27 MHz in the 700 MHz band would be dedicated to the public safety service. The proposal requires relocating the narrowband voice channels from the present position. Guard band responsibility would become a public safety obligation. Viewed from an insulated perspective, where time, investment, planning and energy have not shaped the current environment, the Access Spectrum proposal has merit.

The additional spectrum would afford opportunity for more wideband and broadband applications. The band structure, with the narrowband channels placed more discretely, should contribute to a more effective and less complicated administration of the band and assist in determining the balance between wideband and broadband operations. Overall, the additional spectrum should enhance deployment flexibility.

NPSTC's concern regarding the Access Spectrum proposal, and what it believes to be a significant barrier that is unresolved, centers on the costs that will have to be absorbed by individual public safety agencies if the proposal is implemented. Relocating the narrowband voice channels without alleviating this burden weighs heavily against the proposal. NPSTC thinks it unfair to agencies that have expended monies based on the current band plan to now pay for costs related to relocating the channels. Moreover, it will be perceived as unfair by public safety interests and deter the ongoing planning efforts, and it will result in delaying access to the spectrum.

Despite contentions in the comments minimizing these costs[6], it is taxpayer monies that are at risk if the Commission now changes the rules to require equipment modifications because of the relocation. In particular, NPSTC's information indicates that there are more than 600,000

[6] Comments of Pegasus commencing at page 8, Comments of Access Spectrum et al commencing at page 19.

radios currently used at 800 MHz that were programmed to be used in the 700 MHz band. Change in the location of narrowband voice channels means adjusting each radio. Notably, neither the extent of modifications nor the costs have yet to be delineated.

In addition to those agencies that have acquired equipment for use in both the 800 and 700 MHz bands, there are agencies that have moved beyond planning and have commenced procurement and design efforts. What effect changing the location of the narrowband channels will have on these agencies is unclear. The Commission's dockets indicate at least three major projects. Hennepin County, Minnesota, the State of New York, and the National Capital Region have submitted proposals to use the 700 MHz band.

There are also those costs associated with the extensive planning within each region to determine how the narrowband channels should be assigned, including the expense of revising the CAPRAD database. Several comments also minimize these efforts, citing the limited number of regional plans submitted to the Commission and the few towers and infrastructure constructed. One commenter states that only 26 towers have been constructed in four locations in support of the allocation.[7] It is not simply expectations at stake. These comments ignore the extensive work that underlie the preparation of a regional plan or an actual project-- analysis, discussion, and negotiation. The costs incurred in reliance of the band structure and those associated with the relocation, as large or small as they might be on a macro level, have to be absorbed by some entity. Interests supporting the Access Spectrum proposal relate that there are values associated with restructuring the band beyond public safety that accrue to the public as a whole. Yet that value does not translate in real terms to agencies that have already expended resources and face additional costs if the narrowband channels are relocated.

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[7] Comments of Pegasus at 9.

These costs cannot be absorbed by local and state public safety agencies. The extreme limitations of government funding and that the character of the government sector, where investment is directed to services that provide no revenue, counters assertions that the overall value of the proposal is adequate compensation for the relocation. If reply comments or further commitments present realistic funding sources to address these costs, the Access Spectrum model should be considered further. Yet, NPSTC believes that without a more comprehensive understanding of the costs at stake and a fair means to pay these costs of relocation, the proposal should not move forward.

Relocating the narrowband channels also presents challenges to the agreement the United States has negotiated with Canada addressing how the 700 MHz band is to be shared in the border areas.[8] That agreement is premised on the current band plan. The agreement with Canada comprehends that Canada has no definitive plan to move from channels 64 (770 MHz-776 MHz) and 69 (800 MHz -806 MHz), which under current rules require deference to Canadian broadcast operations. With narrowband operations to be consolidated at the upper end of the public safety segment, the number of unusable channels in the border areas becomes significant for affected agencies.

Access Spectrum contends that it, Columbia Capital, Pegasus Communications, and similarly situated licensees are entitled to compensation for the commitment of their guard band frequencies to the model. That compensation may be a monetary or an exchange of spectrum. NPSTC takes no position on this contention, yet a resolution is neither minor nor free from

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[8] Sharing Arrangement Between the Department of Industry of Canada and the Federal Communications Commission of the United States of America Concerning the Use of the frequency Bands 764 to 776 and 794 to 806 MHz by the Land Mobile Service Along the Canada-United States Border, Arrangement G Land Mobile (Public Safety Services (June 20, 2005) at http://www.fcc.gov/ib/sand/agree/can_nonbroad_agree.html

debate by other licensees and interests. Delay in resolution of the issue will harm this ongoing effort to bring clarity to the 700 MHz band.

The Access Spectrum proposal to relocate the narrowband voice channels and provide additional spectrum to the 700 MHz band public safety segment has merit yet presents several substantial contingencies. Unless means can be found for these contingencies to be resolved expeditiously, the benefits of the proposal become considerably diluted. NPSTC encourages interested parties to explore possible solutions. As NPSTC related in its initial comments, it commits to examining any proposal that will advance public safety communications, including a fair way to move the cost of relocation from public safety agencies. NPSTC understands that a resolution may encompass other aspects of the 700 MHz band, yet urges the Commission to pursue the matter as expeditiously and succinctly as possible.

The NPSTC Proposal

Comments critique the NPSTC proposal as consuming too much spectrum because of the guard bands between narrowband and broadband and wideband operations.[9] Comments emphasize the value of the spectrum outside of the guard band context, particularly since the high quality 700 MHz band is at stake. There is also discussion of how the NPSTC proposal will deter mixed use commercial public safety networks.[10]

As related above, and in our initial comments, the circumstance the Commission faces in examining how best to promote broadband communications in the 700 MHz band is complicated by the work completed. The actions undertaken legitimately relied on the rules establishing the location of the narrowband channels. The environment is not static: NPSTC's proposal is based on comprehending the history that comprises this reliance. Interests pursuing a change in the

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[9] Comments of Access Spectrum at page 12, Comments of Pegasus commencing at page 3.
[10] Comment of Pegasus commencing at page 4

band structure distort the purported value of a new structure if the costs associated with the restructuring are ignored or assumed to be absorbed by those required to change. It is not a realistic position to expound on the purported values of spectrum unburdened by history. NPSTC reiterates that, unlike the commercial sector where revenue can recapture additional costs, government agencies have no such alternative. Instead of proclaiming the value associated with a different band structure, a more effective contribution is recognizing the expense and cost associated with the proposed change.

In emphasizing the value of the spectrum, one comment proposes to eliminate the guard band and instead rely on more compatible use alignment, power flux density, and OOBE restrictions.[11] It states that there have been specific advances in filtering, intermodulation distortion reduction in low noise amplifiers, antennas, and in system architecture. It candidly describes these mechanisms as a means to internalize the cost of interference protection to within the band versus explicit external costs such as guard bands."[12]

NPSTC agrees that compatible allocations promote efficient spectrum use, yet, as noted, the cost of any relocation must be addressed. NPSTC also agrees that there are other methods to mitigate interference that involve enhanced frequency coordination. To a degree, the comment revisits the vigorous debate that occurred when the technical and operational rules for the guard bands were established. The Commission recognized then, and NPSTC reiterates, that there are substantial costs accompanying such methods,[13] none of which are addressed by the comment. If

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[11] Comments of Pegasus.

[12] Dr, Paul Kolodzy, *Interference Analysis of the Proposed Rebanding of the Upper 700 MHz Bands, A Paper Submitted on Behalf of Pegasus Communications Corporation, an Upper 700 MHz A and B Block Licensee Regarding Proposed Public Safety Configurations in 746-806 MHz Band(June 6, 2006)*, contained in Pegasus' Comments as an Attachment.

[13] In the Matter of Service Rules for the 746-764 and 776-794 MHz Bands and Revisions to Part 27 of the Commission's Rules, *Second Report and Order*, WT Docket 99-168, FCC 00-90,) 15 FCC Rcd. 5229 (Marc h 9, 2000) at paragraph 23.

costs are to be internalized to public safety or any service, the details must be presented. The impact on the individual agency must be known.

NPSTC cautions against efforts to quantify the value of the public safety band, whether addressing its guard bands or its need for redundancy and diversity of networks. The standards required involve costs different and above those of commercial operations and translate to a more intrinsic return and value. Promoting an interference-free environment is critical to public safety as compared to commercial operations upon which the value models are based. The risks of default are devastating and translate to loss of life and property. While comments promote mixed public safety/commercial use, NPSTC reiterates that the public safety segment of the700 MHz band must continue to be reserved solely for public safety operations and the standards of the sector. Communications demanded in an emergency are unique and must continue to reflect standards distinct from those pervading commercial operations.

Summary

NPSTC continues to believe that its model presents the most realistic alternative to afford local and state public safety agencies the discretion and flexibility to determine how best to use the spectrum. The merits of the Access Spectrum's proposal depend on resolving several contingencies. We encourage interested parties to explore possible solutions so that this

proceeding can move forward expeditiously and in a manner that moves the costs of any restructured plan away from public safety agencies. NPSTC commends the Commission's work and urges that it move quickly to resolve the issues in this proceeding.

Respectfully submitted,

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